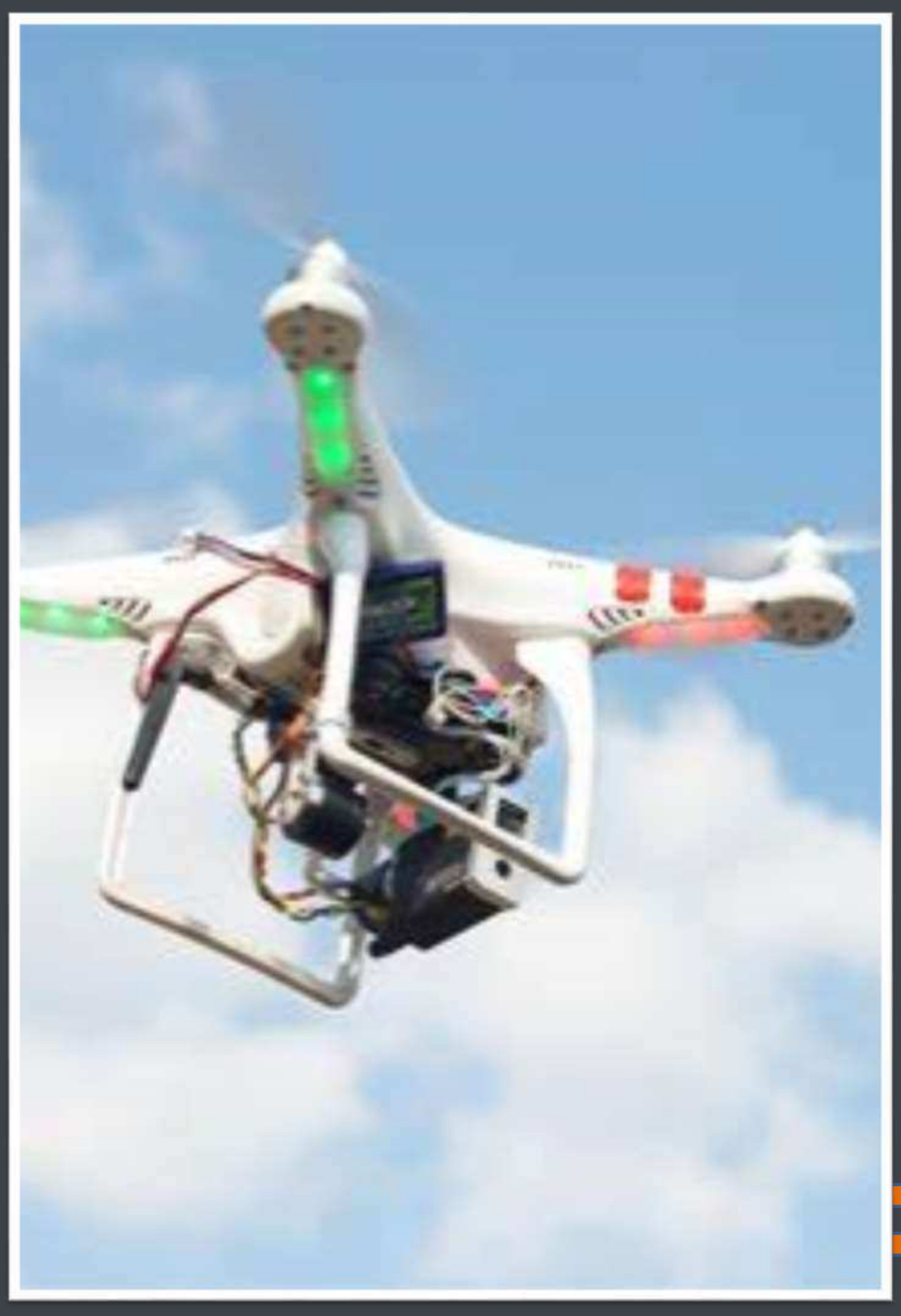


PELAPORAN

PROYEK PEMOTRETAN FOTO UDARA DAN PENYEDIAAN DATA SPASIAL DASAR DI DESA KORPRI JAYA, KECAMATAN SUKARAME

SixFortune Company

Daftar Isi

A. Jadwal Pelaksanaan

B. Pengukuran GNSS dan Foto Udara

   a. Alat

   b. Pengukuran GNSS

   c. Pengolahan GNSS

   d. Pengolahan Foto

C. Pelaporan Pengolahan Data GNSS

Daftar Isi

D. Pelaporan Pengolahan Data Fotogrametri

a. Survey Data

b. Camera Calibration

c. Camera locations

d. GCP locations and error estimates

A. Jadwal Pelaksanaan

Kegiatan	2021											
	April									Mei		
	22	23	24	25	26	27	28	29	30	01	02	03
Pengecekan Alat												
Pengukuran GNSS												
Pemotretan Foto Udara												
Pengolahan Data												
Pelaporan Hasil pengolahan Data												

B. Pengukuran GNNS dan Pemotretan Foto Udara

a. Alat

1. Foto Udara

- Drone DJI inspire 2
- DJI Phantom 4A

2. GNSS

- 1 base (ITR-2)
- 2 Receiver
- Base : GR-5
- Receiver : Leica

3. Premark

- Ukuran kain 20x20

B. Pengukuran GNNS dan Pemotretan Foto Udara

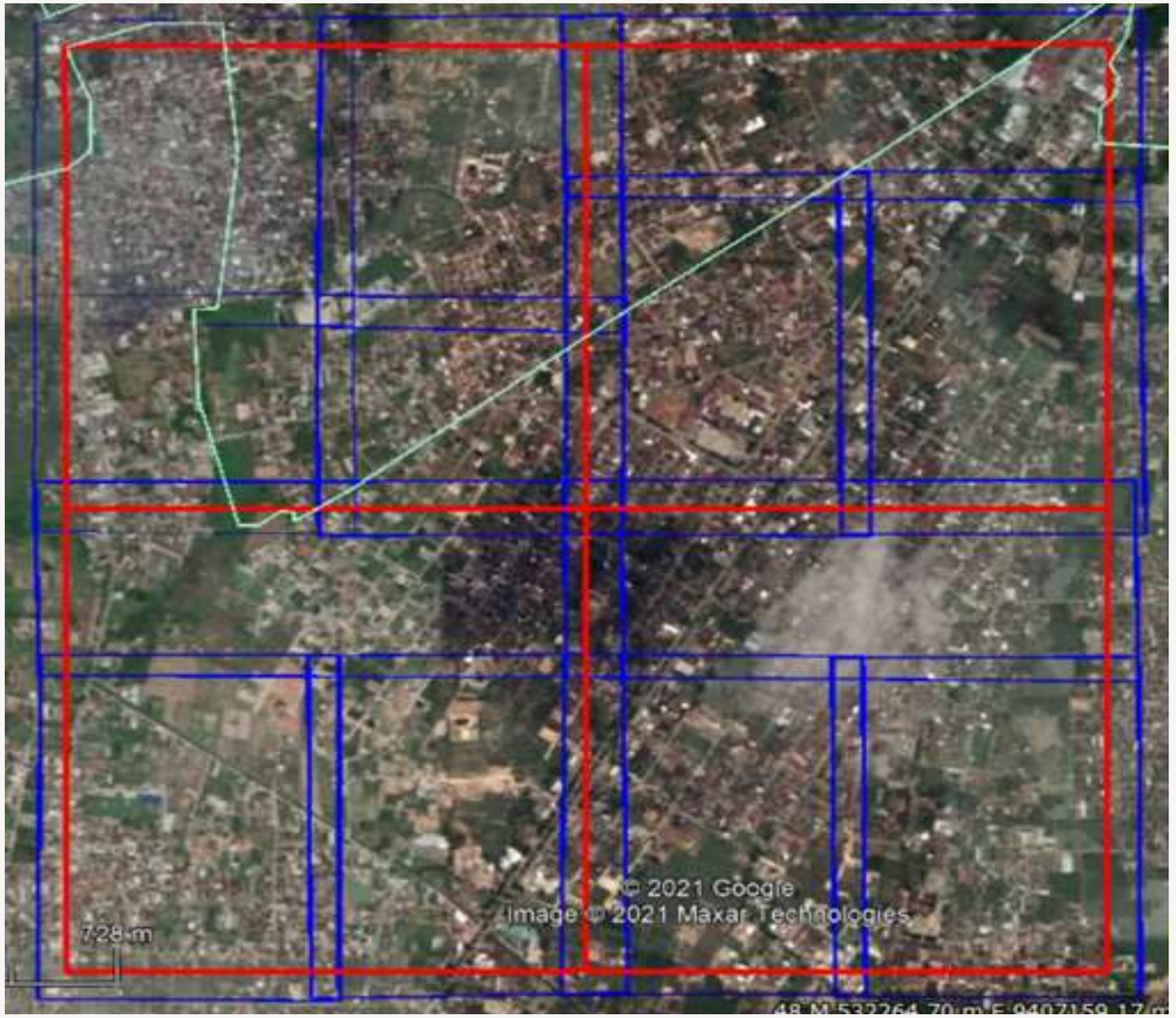
b. Pengukuran GNSS

Pengukuran menggunakan metode radial dengan lama pengamatan 45 menit (moving 15 menit) dengan base berada di ITR 2. Pengukuran yang harus dilakukan adalah pengukuran GCP sebanyak 25 titik dan pengukuran ICP sebanyak 12 titik.

B. Pengukuran GNNS dan Pemotretan Foto Udara

b. Pemotretan Foto Udara

Jalur Terbang yang harus diselesaikan adalah 13 jalur dengan 4 blok. (4 di blok 1, 3 di blok 2, 3 di blok 3, 3 di blok 4)



B. Pengukuran GNNS dan Pemotretan Foto Udara

e. Kendala Saat Pengukuran

1. Pengukuran GNSS
   Ada beberapa patok yang dicabut masyarakat, aki tidak bisa men-charge, lalu kurangnya waktu pengukuran

2. Pemotretan Foto Udara
   Battre Drone yang sangat boros, sehingga banyak waktu yang dipakai untuk men-charge battre

C. Pelaporan Pengolahan Data GNSS

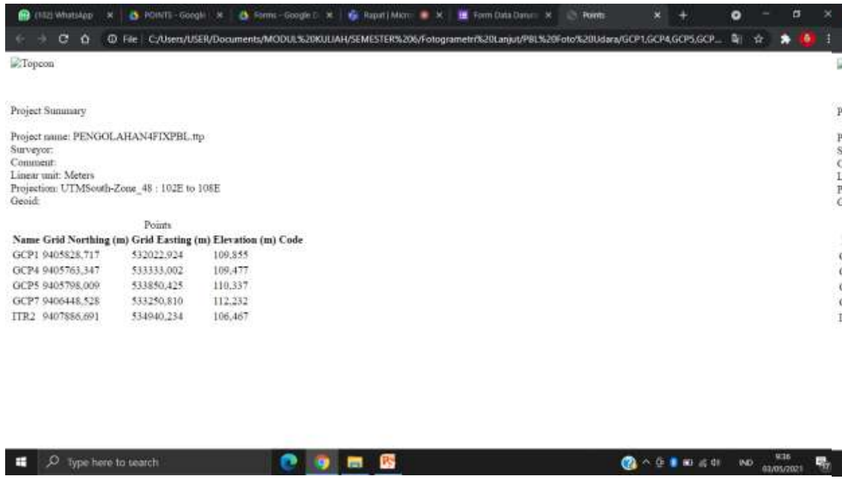
Setelah melakukan pengukuran, data yang telah di download dari GR-5 alatnya memakai aplikasi pengolah topcon. jadi format file tidak perlu di ubah. untuk data dari leica itu perlu di rinex dengan menggunakan cmd. Lalu data .m sama .o di drag ke topcon

C. Pelaporan Pengolahan Data GNSS

drag ke topcon > atur tinggi alat > atur dia base atau receiver > atur merk alat

Saat melakukan pengukuran GNSS, nilai ketinggian yang didapatkan sesungguhnya adalah ketinggian diatas elipsoid (h), bukan diatas Geoid. Oleh karena itu, kita memerlukan besaran nilai undulasi (N) untuk mendapatkan tinggi orthometrik (H) di atas titik tersebutUntuk konversi ke ortho kami menggunakan srgi.big sehingga didapatkan nilai undulasi dan nilai orthometriknya

C. Pelaporan Pengolahan Data GNSS



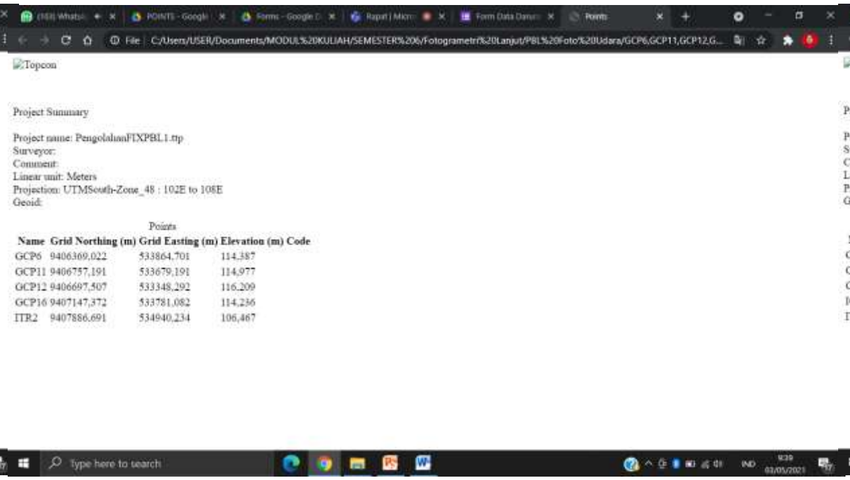
Topcon

Project Summary

Project name: PENGOLAHAN4FIXPBL.ttp
Surveyor:
Comment:
Linear unit: Meters
Projection: UTMSouth-Zone_48 : 102E to 108E
Geoid:

Points

Name	Grid Northing (m)	Grid Easting (m)	Elevation (m)	Code
GCP1	9405828,717	532022,924	109,855	
GCP4	9405763,347	533333,002	109,477	
GCP5	9405798,009	533850,425	110,337	
GCP7	9406448,528	533250,810	112,232	
ITR2	9407886,691	534940,234	106,467	



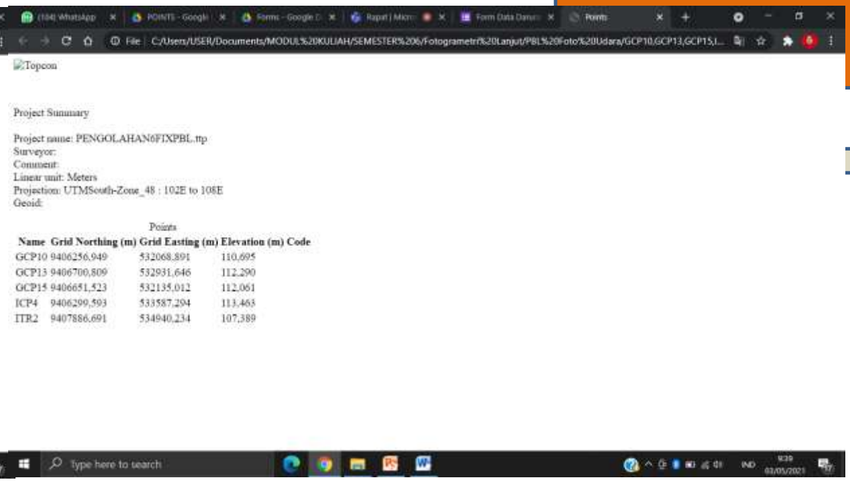
Topcon

Project Summary

Project name: PengolahanFIXPBL1.ttp
Surveyor:
Comment:
Linear unit: Meters
Projection: UTMSouth-Zone_48 : 102E to 108E
Geoid:

Points

Name	Grid Northing (m)	Grid Easting (m)	Elevation (m)	Code
GCP6	9406369,022	533864,701	114,387	
GCP11	9406757,191	533679,191	114,977	
GCP12	9406697,507	533348,292	116,209	
GCP16	9407147,372	533781,082	114,236	
ITR2	9407886,691	534940,234	106,467	



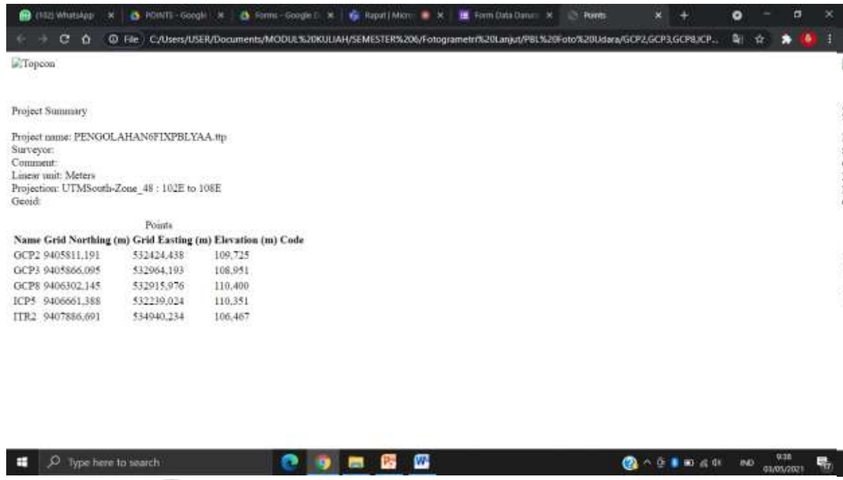
Topcon

Project Summary

Project name: PENGOLAHAN6FIXPBL.ttp
Surveyor:
Comment:
Linear unit: Meters
Projection: UTMSouth-Zone_48 : 102E to 108E
Geoid:

Points

Name	Grid Northing (m)	Grid Easting (m)	Elevation (m)	Code
GCP10	9406256,949	532068,891	110,695	
GCP13	9406700,809	532931,646	112,290	
GCP15	9406651,523	532135,012	112,061	
ICP4	9406299,593	533587,294	113,463	
ITR2	9407886,691	534940,234	107,389	



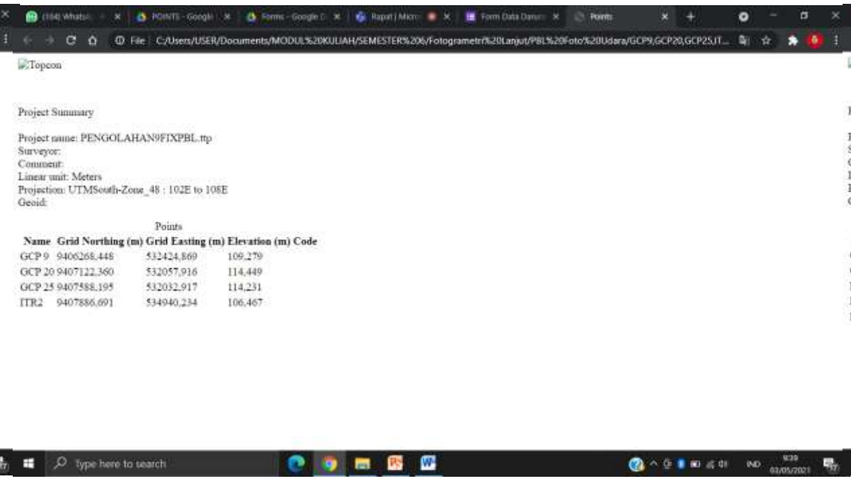
Topcon

Project Summary

Project name: PENGOLAHAN6FIXPBLYAA.ttp
Surveyor:
Comment:
Linear unit: Meters
Projection: UTMSouth-Zone_48 : 102E to 108E
Geoid:

Points

Name	Grid Northing (m)	Grid Easting (m)	Elevation (m)	Code
GCP2	9405811,191	532424,438	109,725	
GCP3	9405866,095	532964,193	108,951	
GCP8	9406302,145	532915,976	110,400	
ICP5	9406661,388	532239,024	110,351	
ITR2	9407886,691	534940,234	106,467	



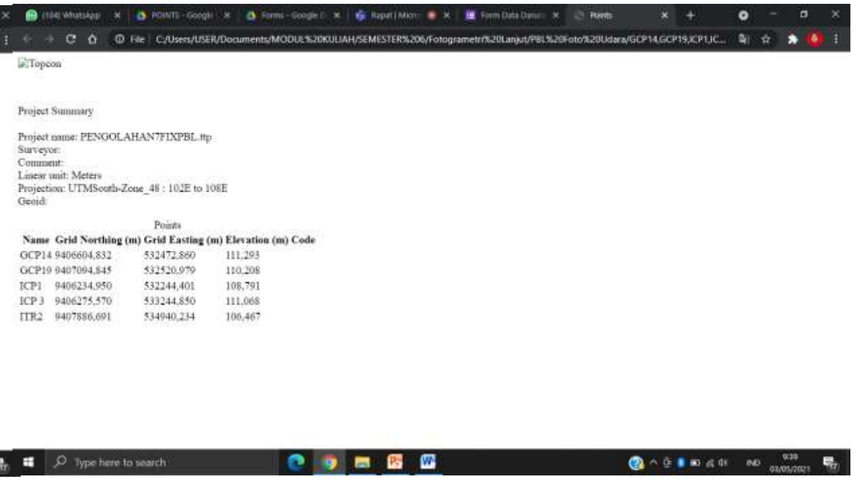
Topcon

Project Summary

Project name: PENGOLAHAN9FIXPBL.ttp
Surveyor:
Comment:
Linear unit: Meters
Projection: UTMSouth-Zone_48 : 102E to 108E
Geoid:

Points

Name	Grid Northing (m)	Grid Easting (m)	Elevation (m)	Code
GCP 9	9406268,448	532424,869	109,279	
GCP 20	9407122,360	532057,916	114,449	
GCP 25	9407588,195	532032,917	114,231	
ITR2	9407886,691	534940,234	106,467	



Topcon

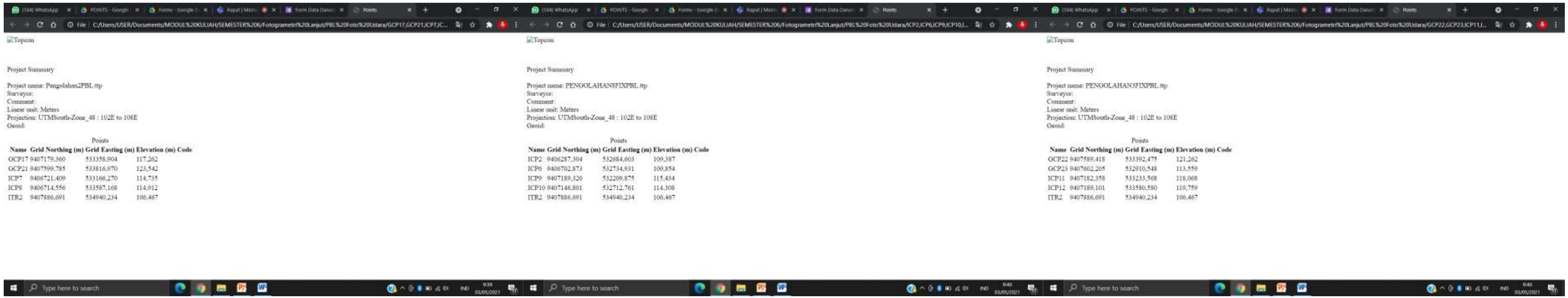
Project Summary

Project name: PENGOLAHAN7FIXPBL.ttp
Surveyor:
Comment:
Linear unit: Meters
Projection: UTMSouth-Zone_48 : 102E to 108E
Geoid:

Points

Name	Grid Northing (m)	Grid Easting (m)	Elevation (m)	Code
GCP14	9406604,832	532472,860	111,293	
GCP19	9407094,845	532520,979	110,208	
ICP1	9406234,950	532244,401	108,791	
ICP 3	9406275,570	533244,850	111,068	
ITR2	9407886,691	534940,234	106,467	

C. Pelaporan Pengolahan Data GNSS



Topcon

Project Summary

Project name: Pengolahan2PBL.ttp
Surveyor:
Comment:
Linear unit: Meters
Projection: UTMSouth-Zone_48 : 102E to 108E
Geoid:

Points

Name	Grid Northing (m)	Grid Easting (m)	Elevation (m)	Code
GCP17	9407179,360	533358,904	117,262	
GCP21	9407599,785	533816,970	123,542	
ICP7	9406721,409	533166,270	114,735	
ICP8	9406714,556	533587,168	114,912	
ITR2	9407886,691	534940,234	106,467	

Topcon

Project Summary

Project name: PENGOLAHAN8FIXPBL.ttp
Surveyor:
Comment:
Linear unit: Meters
Projection: UTMSouth-Zone_48 : 102E to 108E
Geoid:

Points

Name	Grid Northing (m)	Grid Easting (m)	Elevation (m)	Code
ICP2	9406287,304	532684,603	109,387	
ICP6	9406702,873	532734,931	109,854	
ICP9	9407189,320	532209,875	115,434	
ICP10	9407146,801	532712,761	114,308	
ITR2	9407886,691	534940,234	106,467	

Topcon

Project Summary

Project name: PENGOLAHAN3FIXPBL.ttp
Surveyor:
Comment:
Linear unit: Meters
Projection: UTMSouth-Zone_48 : 102E to 108E
Geoid:

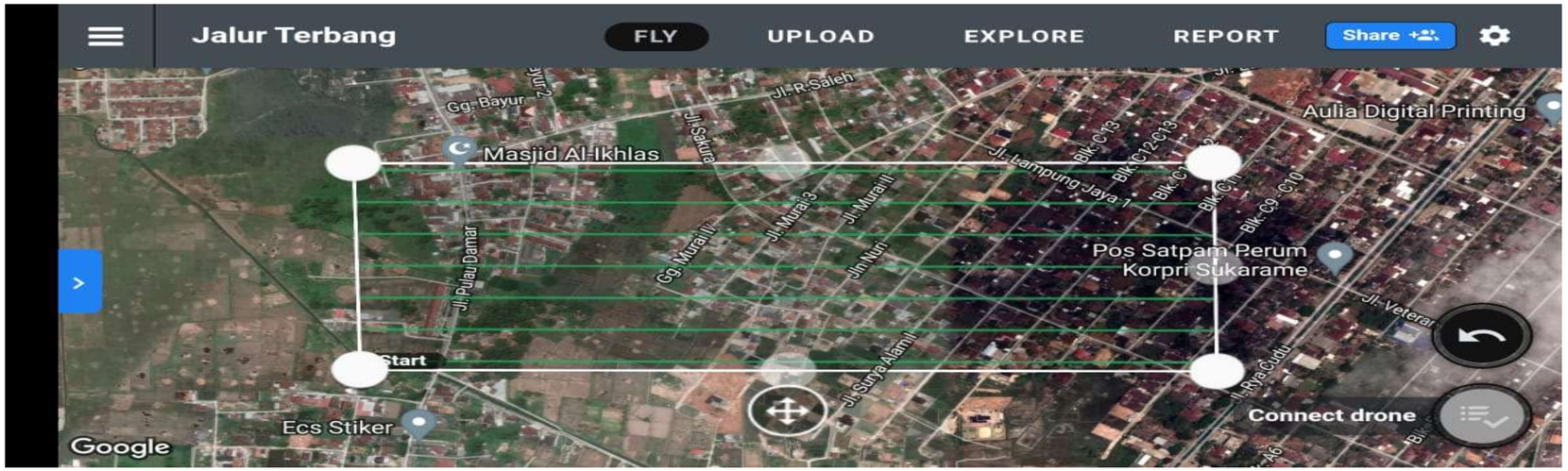
Points

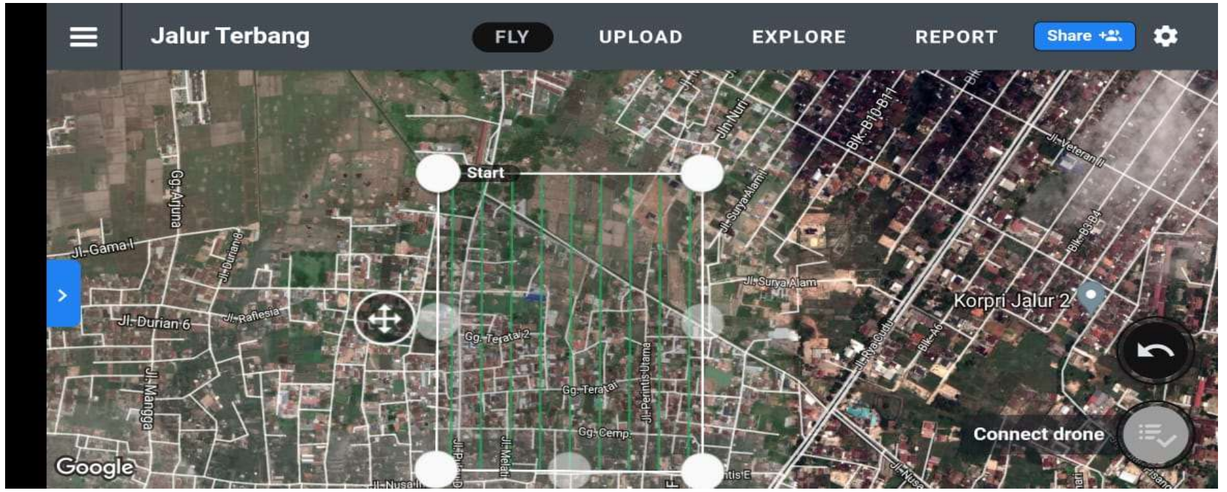
Name	Grid Northing (m)	Grid Easting (m)	Elevation (m)	Code
GCP22	9407589,418	533392,475	121,262	
GCP23	9407602,205	532910,548	113,559	
ICP11	9407182,358	533233,568	118,068	
ICP12	9407189,101	533580,580	119,759	
ITR2	9407886,691	534940,234	106,467	

C. Pelaporan Pengolahan Data GNSS

	Nama GCP/ICP	Lintang	Bujur	H Ellipsoid (m)	Undulasi Geoid (m)	H Orthometris (m)	Ketelitian (m)
Blok 4	GCP 1	-5,3754339	105,289035	109,855	14,11	95,745	0,172
	GCP 2	-5,375586	105,292664	109,725	14,11	95,615	0,172
	GCP 3	-5,3750861	105,297537	108,951	14,168	94,783	0,172
	GCP 8	-5,3711421	105,297093	110,4	14,194	96,206	0,172
	GCP 9	-5,3714518	105,292662	109,279	14,137	95,142	0,172
	GCP 10	-5,3715619	105,289448	110,695	14,137	96,558	0,172
	GCP 13	-5,3675415	105,297236	112,29	14,194	98,096	0,172
	GCP 14	-5,368412	105,293093	111,293	14,137	97,156	0,172
	GCP 15	-5,3679882	105,290052	112,061	14,137	97,924	0,172
	ICP 1	-5,3717601	105,291037	108,791	14,137	94,654	0,172
	ICP 2	-5,3712788	105,295008	109,387	14,194	95,193	0,172
	ICP 5	-5,3678973	105,29099	110,351	14,137	96,214	0,172
	ICP 6	-5,3675243	105,295458	109,854	14,194	95,66	0,172

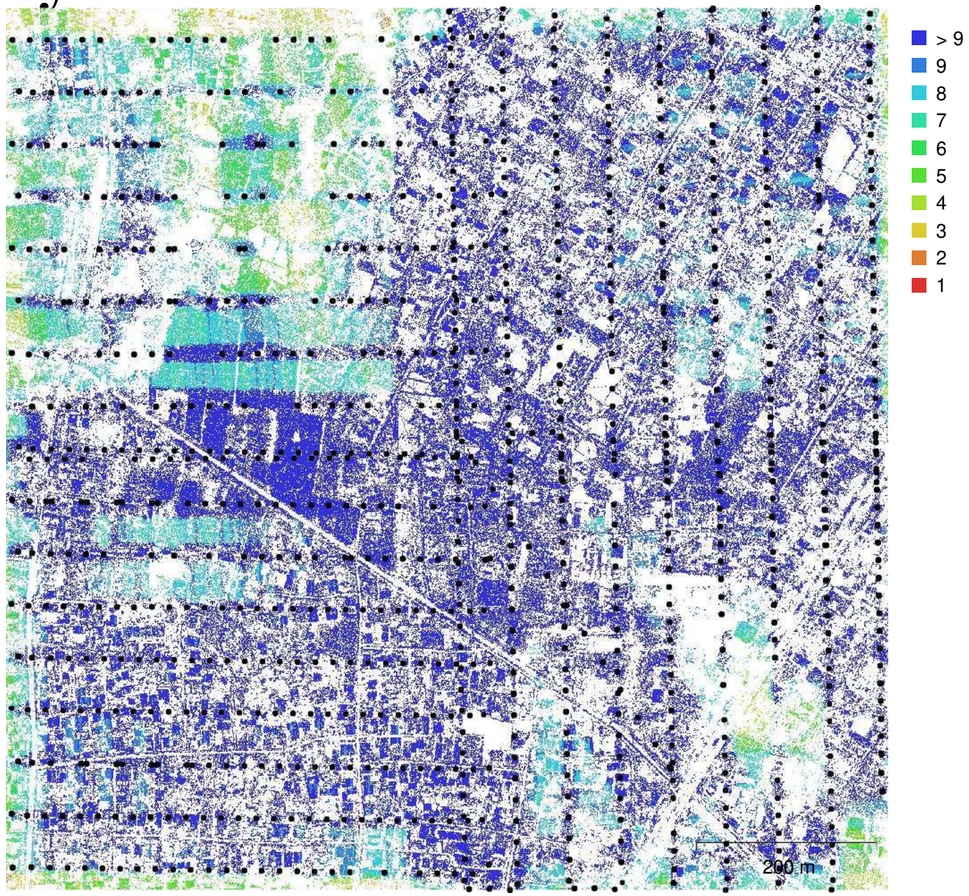
D. Pelaporan Pengolahan Data Fotogrametri





C. Pelaporan Pengolahan Data Fotogrametri

a. Survey Data



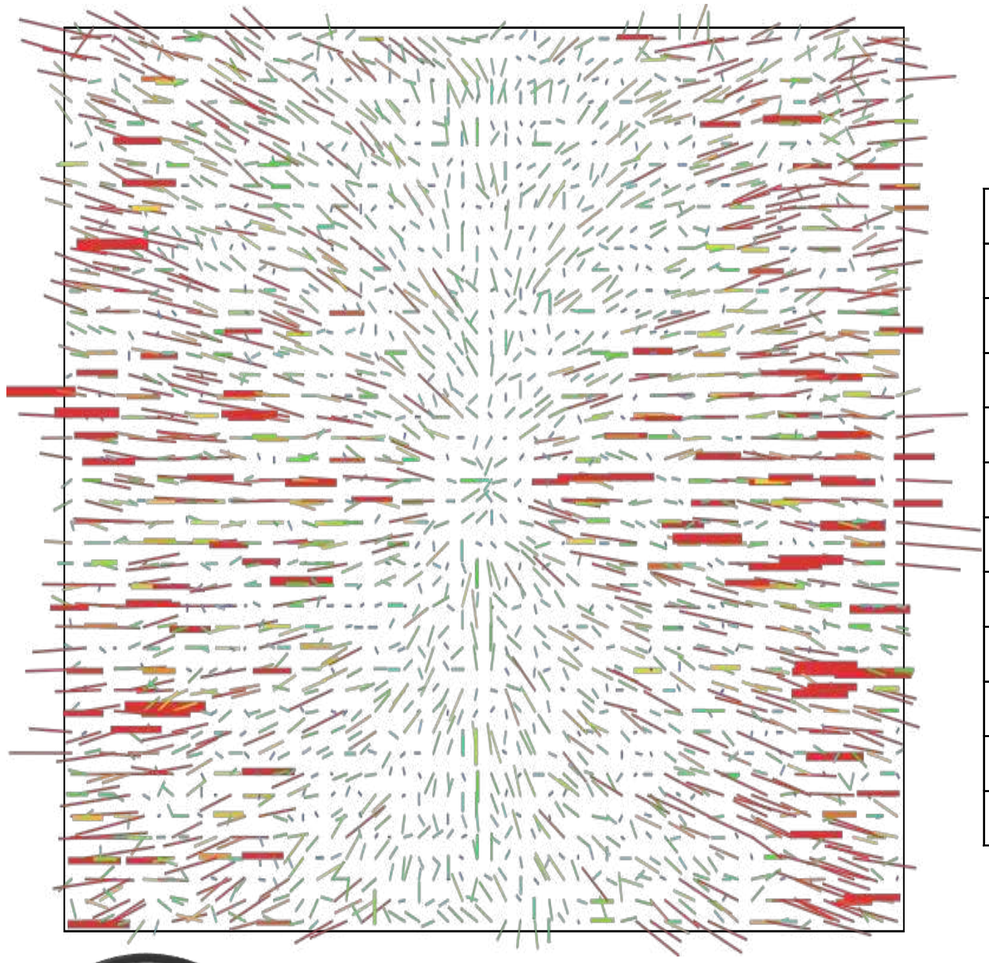
Number of images: 936
Flying altitude: 108 m
Ground resolution: 2.94 cm/pix
Coverage area: 0.378 km²
Camera stations: 932
Tie points: 1,783,536
Projections: 4,553,222
Reprojection error: 0.272 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
FC6310 (8.8mm)	4864 x 3648	8.8 mm	2.61 x 2.61 µm	No

Table 1. Cameras.

C. Pelaporan Pengolahan Data Fotogrametri

b. Camera Calibration



Type	Resolution	Focal Length	Pixel Size
Frame	**4864 x 3648**	**8.8 mm**	**2.61 x 2.61 µm**

	Value	Error	F	Cx	Cy	B1	B2	K1	K2	K3	K4	P1	P2
F	**3680.42**	1.3	1.00	0.33	-0.29	0.03	0.02	-0.15	0.11	-0.06	-0.01	0.04	0.16
Cx	**2.78558**	0.066		1.00	-0.19	0.08	0.42	0.03	-0.05	0.07	-0.09	0.87	-0.03
Cy	**59.4242**	0.077			1.00	-0.41	0.04	-0.13	0.14	-0.16	0.18	-0.11	0.86
B1	**0.123708**	0.0095				1.00	0.00	0.14	-0.17	0.18	-0.19	0.08	-0.41
B2	**-0.781532**	0.0062					1.00	-0.01	0.01	-0.01	0.00	0.44	0.07
K1	**0.0314749**	0.00061						1.00	-1.00	0.98	-0.96	0.03	-0.10
K2	**-0.1169**	0.0021							1.00	-1.00	0.98	-0.04	0.10
K3	**0.200647**	0.0032								1.00	-1.00	0.04	-0.09
K4	**-0.123119**	0.0018									1.00	-0.04	0.09
P1	**0.000789697**	8.6e-06										1.00	-0.08
P2	**0.00432776**	1.1e-05											1.00

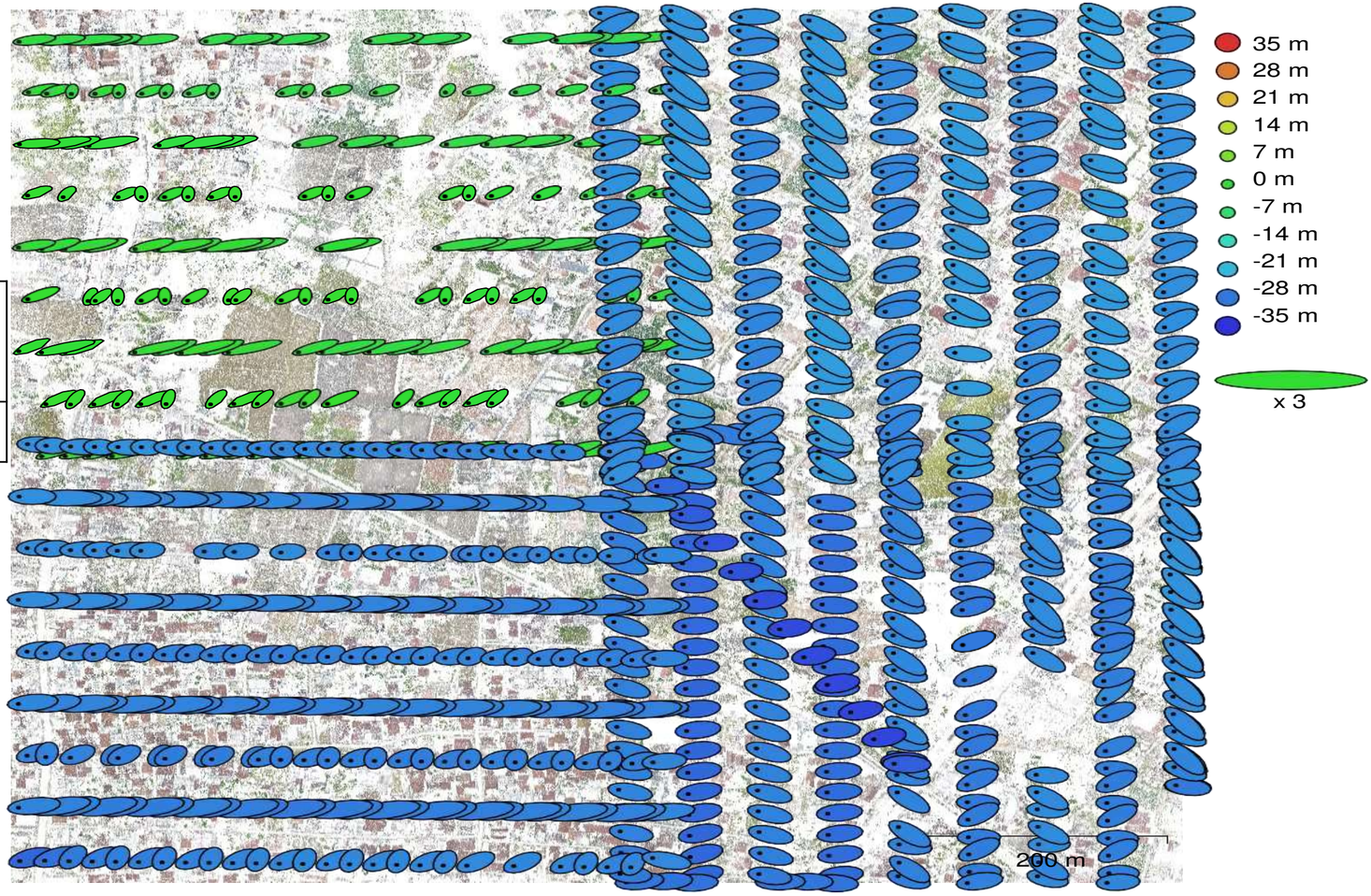
Table 2. Calibration coefficients and correlation matrix.

C. Pelaporan Pengolahan Data Fotogrametri

c. Camera locations

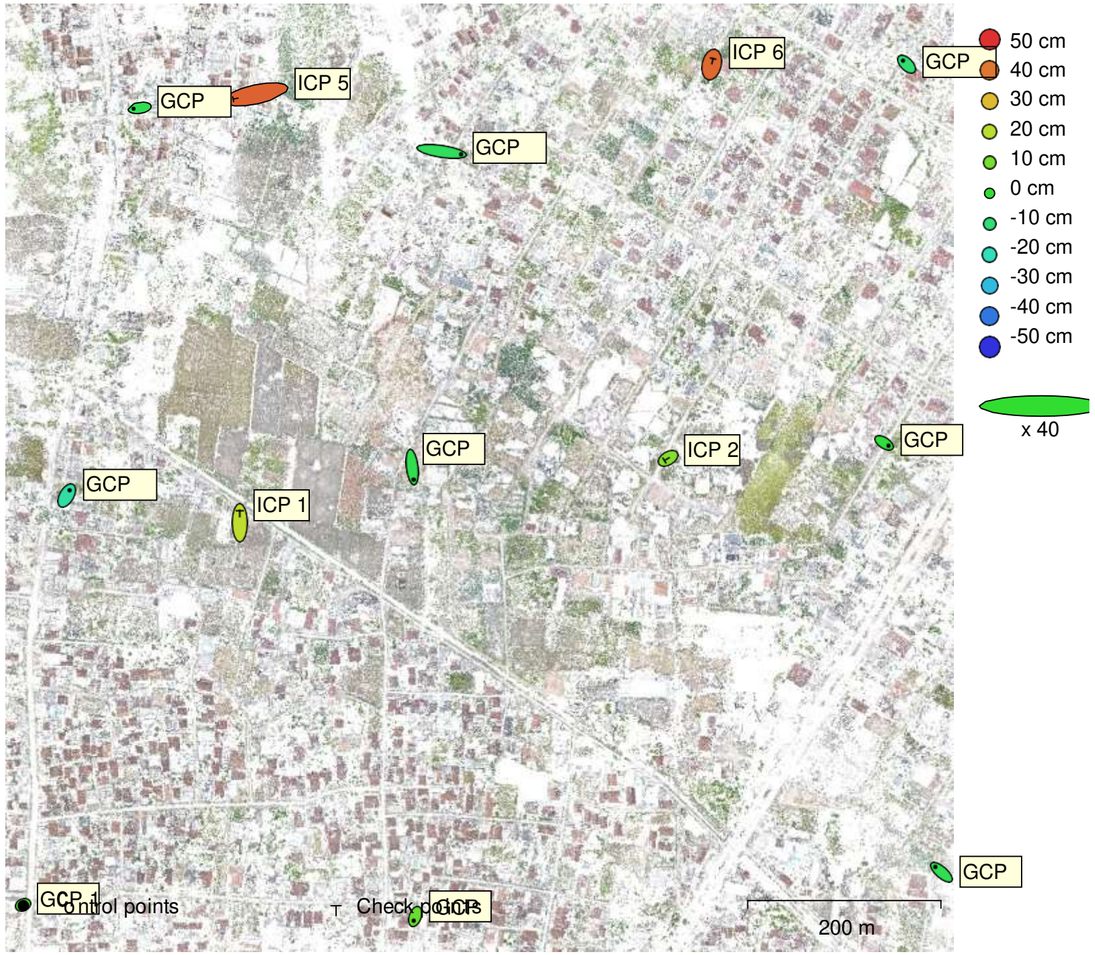
Table 3. Average camera location error.

X error (m)	Y error (m)	Z error (m)	XY error (m)	Total error (m)
7.58683	3.18468	23.5481	8.22813	24.9442



C. Pelaporan Pengolahan Data Fotogrametri

d. GCP locations and error estimates



C. Pelaporan Pengolahan Data Fotogrametri

d. GCP locations and error estimates

Count	X error (cm)	Y error (cm)	Z error (cm)	XY error (cm)	Total (cm)
9	37.9409	27.3048	7.83211	46.7446	47.3962

Table 4. Control points RMSE.

X - Longitude, Y - Latitude, Z - Altitude.

Count	X error (cm)	Y error (cm)	Z error (cm)	XY error (cm)	Total (cm)
4	59.4729	36.4576	32.3286	69.758	76.8851

Table 5. Check points RMSE.

X - Longitude, Y - Latitude, Z - Altitude.

C. Pelaporan Pengolahan Data Fotogrametri

d. GCP locations and error estimates

Label	X error (cm)	Y error (cm)	Z error (cm)	Total (cm)	Image (pix)
GCP 1	10.6296	3.86205	4.92268	12.3344	7.498 (8)
GCP 2	-7.3591	-20.8975	8.0208	23.5626	8.270 (8)
GCP 3	-31.2736	26.4617	-4.67334	41.2323	13.258 (9)
GCP 8	22.2564	-13.6265	-1.78977	26.1578	12.011 (23)
GCP 9	6.96669	-64.0677	-4.14059	64.5783	13.307 (16)
GCP 10	14.0085	27.0493	-16.5539	34.6689	6.196 (20)
GCP 13	-18.0657	17.7955	-9.28888	27.0062	8.926 (11)
GCP 14	98.6548	-14.0939	-6.2582	99.8527	22.426 (12)
GCP 15	-31.7988	-4.55741	-4.67385	32.4619	10.422 (9)
Total	**37.9409**	**27.3048**	**7.83211**	**47.3962**	**12.243**

Table 6. Control points.

X - Longitude, Y - Latitude, Z - Altitude.

C. Pelaporan Pengolahan Data Fotogrametri

d. GCP locations and error estimates

Label	X error (cm)	Y error (cm)	Z error (cm)	Total (cm)	Image (pix)
ICP 5	-117.362	-25.5146	42.9088	127.538	5.902 (6)
ICP 6	6.79739	30.262	41.9324	52.1567	1.031 (15)
ICP 1	-0.318431	60.2229	20.7233	63.6895	1.399 (15)
ICP 2	-18.108	-11.0924	12.3132	24.547	11.040 (22)
Total	**59.4729**	**36.4576**	**32.3286**	**76.8851**	**7.114**

Table 7. Check points.

X - Longitude, Y - Latitude, Z - Altitude.